REMARKS

In section 3 of the Office Action, the Examiner rejected claims 1, 11, 32, 37, 42, and 88 under 35 U.S.C. §102(e) as being anticipated by the Vancelette patent.

The Vancelette patent shows in Figure 1 video cameras 12, 14 and 16 providing video and audio signals on corresponding channels A, B, and C to a transmitter 20. The transmitter 20 digitizes and compresses the video and audio signals of channels A, B, and C as a packetized data stream conforming to the MPEG-2 or DigiCipher® II standards.

The packetized data stream is combined with control messages from an operator interface 28 at a multiplexer/encryptor 26. The control messages may include code download packets that include computer software to be downloaded to a viewer's set-top terminal. The software controls the operation of the terminal, including the associated user interface and OSD processor.

The packetized data stream and control messages are encrypted. The encrypted packetized data stream and control messages are provided to a forward error correction (FEC) encoder 30 and then to a QAM modulator

32 for transmission as a transmitted signal 210 to the cable headend 50.

At the cable headend 50, the transmitted signal 210 is combined with programming received from other sources, and is transmitted to a subscriber 60 having a set-top terminal 70 for display on a television 80. Thus, the cable headend 50 includes a multiplexer 230 that combines local programming 220 with the transmitted signal 210 from the transmitter 20 under control of an operator interface 240 and a memory 250. The operator interface 240 may provide channel mapping data, on-screen display graphics data, and terminal address data. The channel mapping data, OSD data, and terminal address data are stored in the memory 250.

As shown in Figure 5, the set-top terminal 70 provides transmissions received at an input 510 to an FEC decoder 520 and a demodulator 525. The forward error corrected and demodulated packetized data stream is provided to a demultiplexer/decryptor 530, where the encrypted data packets are decrypted and separated into two data paths. In one path, control data packets are provided to a microprocessor 540. In the other path, video and audio packets are provided to a processing and decompression function 555.

The object code from the code download packets is executed by the microprocessor 540 and OSD graphics processor 545 to provide alternative audio and video capabilities. For instance, "code 1" packets 410 may include code related to on-screen graphics. The microprocessor 540 also receives a signal from a user interface 535, which is responsive to viewer commands. In response to OSD data received via the packetized data stream and the code download packets, the OSD processor 545 creates a graphical display that informs the viewer of the various available audio and video options. The user interface 535 receives the viewer's commands and provides them to the microprocessor 540 and a memory 560.

If the viewer has selected a primary channel to view, the microprocessor 540 determines which audio and video packets in the received data stream correspond to the selected primary channel, and the appropriate video and audio packets are processed by the function 555. Additionally, OSD data from the OSD processor 545 is combined with the video signal by the function 555 to form a composite video signal to display the OSD graphics and the video data.

As shown in Figure 6, software (e.g., object code) is downloaded or installed on the terminal and

stored in memory at 610. At 620, channel mapping and other control data are received via the packetized data stream and are stored in memory. At 630, the user selects a primary channel. At 640, the audio and video packets of the selected primary channel are processed and displayed. At 650, the user invokes the OSD graphic display. At 660, the user selects desired alternative audio/video signals. At 670, the microprocessor 540 reads the memory to obtain and modify the channel mapping and other control data corresponding to the selected audio and video signals. The microprocessor 540 then issues a selection command to the decompression and processing function 555 so that the corresponding audio and video packets are processed and displayed along with the OSD graphics.

Independent claim 1 of the present application is directed to an MPEG on-screen display coder comprising an on-screen display turn on device and an MPEG encoder. The on-screen display turn on device is arranged to provide an output in response to an on-screen display instruction. The MPEG encoder is coupled to the an on-screen display turn on device and is arranged to receive dynamic video frames and to process the dynamic video

frames so as to encode frames with an on-screen display in response to the on-screen display instruction.

The Vancelette patent does not disclose that dynamic video frames are processed by an MPEG encoder so as to encode frames with the on-screen display. The Vancelette patent merely discloses at column 10, lines 32-38 that OSD data from an OSD processor 545 is combined with a video signal by a function 555 to form a composite video signal including, for instance, a split screen or overlay format with part of the screen displaying OSD graphics and part of the screen displaying the video.

As can be seen, there is no mention here of an MPEG encoder that encodes frames with an on-screen display as required by independent claim 1.

The Examiner points to column 6, lines 1-25 and to column 7, lines 40-67 for an MPEG encoder that encodes frames with an on-screen display as recite in independent claim 1.

However, column 6, lines 1-25 of the Vancelette patent merely states (i) that the video cameras 12, 14, and 16 provide video and audio signals on corresponding channels A, B, and C, (ii) that the video and audio signals are digitized, compressed, and packetized in a data stream so as to conform to the MPEG-2 or DigiCipher®

standards, and (iii) that the resulting stream is combined with control messages from an operator interface 28 at the multiplexer/encryptor 26.

As can be seen, there is no mention here of an MPEG encoder that encodes frames with an on-screen display as required by independent claim 1.

Column 7, lines 40-67 of the Vancelette patent merely states (i) that the operator interface 240 in the cable headend 50 provides on-screen display graphics data, (ii) that the headend operator may insert control data via a multiplexer 230 grouping the audio and video signals of the packetized data stream and local programming together, and (iii) that the audio and video signals may be grouped according to a tiered marketing scheme.

Again, there is no mention here of an MPEG encoder that encodes frames with an on-screen display as required by independent claim 1.

Therefore, the Vancelette patent does not anticipate independent claim 1.

Independent claim 32 is directed to an MPEG on-screen display coder comprising an MPEG encoder and a multiplexer. The MPEG encoder encodes frames of a selected program with an on-screen display. The

multiplexer replaces original frames with the encoded frames for supply to a digital television receiver.

The Vancelette patent does not disclose that an MPEG encoder encodes frames with an on-screen display, and further does not disclose that a multiplexer replaces original frames with these encoded frames. The Vancelette patent merely discloses at column 10, lines 32-38 that OSD data from an OSD processor 545 is combined with a video signal at a function 555 to form a composite video signal including, for instance, a split screen or overlay format with part of the screen displaying OSD graphics and part of the screen displaying the video. This portion of the Vancelette patent does not disclose whether either the OSD processor 545 or the function 555 encodes frames with an on-screen display or multiplexes such encoded frames with original frames.

The Examiner points to column 9, lines 40-45 for the MPEG encoder of independent claim 32 and to the multiplexer 230 in Figure 2 for the multiplexer of independent claim 32.

However, column 9, lines 40-45 merely discloses that the microprocessor 540 receives a signal from a user interface 535, that the OSD graphic processor 545 receives OSD data, that the OSD data allows the processor

545 to provide a variety of graphical displays on the display device 580, and that the display device 580 reproduces the data of the audio and video signals.

As can be seen, there is no disclosure here of an MPEG encoder that encodes frames of a selected program with an on-screen display.

The multiplexer 230 receives local programming 220, a packetized data stream 210, and data from an operator interface 240. The operator interface 240 may provide on-screen display graphics data. There is no disclosure in the Vancelette patent that the multiplexer 230 receives frames of a selected program MPEG encoded with an on-screen display.

Therefore, the Vancelette patent does not anticipate independent claim 32.

Independent claim 88 is directed to an MPEG on-screen display coder comprising a demultiplexer, an MPEG encoder, and a multiplexer. The demultiplexer is arranged to demultiplex frames of a selected video program from frames of a non-selected program in a transport stream. The MPEG encoder is arranged to receive the frames of the selected program and to process the frames of the selected program so as to encode frames with an on-screen display. The multiplexer is arranged

to multiplex the encoded frames with the frames of the non-selected video program in the transport stream.

The Vancelette patent does not disclose that an MPEG encoder encodes frames with an on-screen display, and further does not disclose that a multiplexer multiplexes the encoded frames with the frames of a non-selected video program in the transport stream. The Vancelette patent merely discloses at column 10, lines 32-38 that OSD data from an OSD processor 545 is combined with a video signal at a function 555 to form a composite video signal including, for instance, a split screen or overlay format with part of the screen displaying OSD graphics and part of the screen displaying the video. This portion of the Vancelette patent does not disclose whether either the OSD processor 545 or the function 555 MPEG encodes frames with an on-screen display or multiplexes such MPEG encoded frames with the frames of a non-selected video program in the transport stream.

The Examiner points to column 9, lines 40-45 for the MPEG encoder of independent claim 88 and to the multiplexer 230 in Figure 2 for the multiplexer of independent claim 88.

However, as discussed above, these portions of the Vancelette patent do not disclose the MPEG encoder and multiplexer of independent claim 88.

The Examiner further points to column 12, lines 5-55 for the demultiplexer of independent claim 88.

This portion of the Vancelette patent states (i) that a television viewer can select among available audio and video programming alternatives, (ii) that a service provider transmits different audio and video signals along with an OSD to a cable system headend or directly to a terminal at the viewer's home, (iii) that selected audio and video data packets are retrieved, processed, and displayed at a user's terminal, and (iv) that code can be down loaded to the user's terminal to accommodate an OSD display of alternative audio and video signals of two or more programming services.

As can be seen, there is no mention here of the demultiplexer of independent claim 88.

Figure 5 does disclose a demultiplexer 530. However, the Vancelette patent does not disclose that the demultiplexer 530 demultiplexes frames of a selected video program from frames of a non-selected program in a transport stream so that the frames of the selected program can be supplied to an MPEG encoder.

Therefore, the Vancelette patent does not anticipate independent claim 88.

Because the Vancelette patent does not anticipate independent claims 1 and 32, the Vancelette patent does not anticipate dependent claims 11, 37, and 42.

Moreover, dependent claim 11 recites that the MPEG encoder processes the dynamic video frames by overlaying the on-screen display on the dynamic video frames.

There is no disclosure in the Vancelette patent of an MPEG encoder that processes dynamic video frames by overlaying an on-screen display on the dynamic video frames. Indeed, the Vancelette patent does not disclose that the OSD processor 545 or the function 555 is an MPEG encoder. Furthermore, while the Vancelette patent seems to suggest that the function 22 may operate according to the MPEG-2 standard, there is no disclosure in the Vancelette patent that the function 22 processes an on-screen display.

The Examiner points to column 10, lines 30-40 for an MPEG encoder that processes dynamic video frames by overlaying an on-screen display on the dynamic video frames as recited in independent claim 11.

However, this portion of the Vancelette patent merely discloses (i) that packet PIDs are used to process video and audio packets at the function 555, and (ii) that an OSD from the OSD processor 545 is combined with the video signal at the function 555 to form a composite video signal for display.

There is no disclosure in the Vancelette patent that either the function 555 or the OSD processor 545 is an MPEG encoder that processes dynamic video frames by overlaying an on-screen display on the dynamic video frames as required by dependent claim 11.

Therefore, the Vancelette patent does not anticipate independent claim 11.

Dependent claim 37 recites that the encoded frames have a time base which is slaved to the original frames.

There is no disclosure in the Vancelette patent of an MPEG encoder that produces encoded frames having a time base which is slaved to the original frames.

The Examiner points to column 8, lines 30-60 for an MPEG encoder that meets the limitations of independent claim 37.

However, this portion of the Vancelette patent merely discloses (i) that audio and video data packets

are time-multiplexed by the multiplexer 26 to provide a packetized data stream 380, (ii) that the data stream 380 is modulated at a specific carrier frequency, (iii) that the packetized data stream from the operator interface 28 is provided to the multiplexer 26, (iv) that control message data packets are time-multiplexed by the multiplexer 26 to provide a packetized data stream 470, and (v) that the data stream 470 is modulated to a specific carrier frequency.

As can be seen, there is no mention in this portion of the Vancelette patent that the encoded frames have a time base which is slaved to the original frames as required by dependent claim 37.

Therefore, the Vancelette patent does not anticipate independent claim 37.

In section 5 of the Office Action, the Examiner rejected claims 16, 17, 28, 29, 46, 47, 56, and 57 under 35 U.S.C. §103(a) as being unpatentable over the Vancelette patent.

As discussed above, the Vancelette patent does not disclose MPEG encoding of frames with an on-screen display. Therefore, claims 16, 17, 28, 29, 46, 47, 56, and 57 cannot be unpatentable over the Vancelette patent.

Moreover, because the Vancelette patent does not disclose MPEG encoding of frames with an on-screen display, the Vancelette patent cannot suggest encoding I frames with the on-screen display as recited in dependent claims 16, 28, 46, and 56, or encoding subsequent P frames by prediction based upon the encoded I frames with residuals and motion vectors set equal to zero as recited in dependent claims 17, 29, 47, and 57.

For this reason also, claims 16, 17, 28, 29, 46, 47, 56, and 57 cannot be unpatentable over the Vancelette patent.

In section 6 of the Office Action, the Examiner rejected claims 59-62, 64, 70, and 81-87 under 35 U.S.C. §103(a) as being unpatentable over the Vancelette patent in view of the Naimpally patent.

The Naimpally patent discloses the replacement of stuffing packets with private data packets in order to transmit private data in the transport stream. In this arrangement, a Transport Packet is captured from the Transport Stream. If the Transport Packet includes stuffing bytes, the location and number of the stuffing bytes are determined. Based on these determinations, the stuffing bytes are replaced with private data.

As can be seen, the Naimpally patent also fails to disclose MPEG encoding of frames with an on-screen display. Therefore, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claims 1, 32, and 88.

Because the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claim 32, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of dependent claims 59-61.

Accordingly, dependent claims 59-61 are not unpatentable over the Vancelette patent in view of the Naimpally patent.

Independent claim 62 is directed to an MPEG on-screen display coder comprising a buffer, an MPEG encoder, and a multiplexer. The buffer receives and buffers an MPEG transport data stream containing frames of a selected program and frames of a non-selected program. The MPEG encoder encodes frames of the selected program with an on-screen display. The multiplexer selectively passes to a digital television receiver the frames of the non-selected program, the encoded frames of

the selected program, and original frames of the selected program.

As discussed above, neither the Vancelette patent nor the Naimpally patent discloses MPEG encoding of frames with an on-screen display. Therefore, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claim 62.

Because the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claim 62, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of dependent claims 64, 70, and 81-84.

Accordingly, dependent claims 64, 70, and 81-84 are not unpatentable over the Vancelette patent in view of the Naimpally patent.

Independent claim 85 is directed to an MPEG on-screen display coder comprising an MPEG encoder that encodes frames with an on-screen display, and a make-up packet source that adds make-up packets to each encoded frame as necessary to ensure that each encoded frame has as many transport packets as original frames.

As also discussed above, neither the Vancelette patent nor the Naimpally patent discloses MPEG encoding of frames with an on-screen display. Therefore, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claim 85.

Because the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of independent claim 85, the combination of the Vancelette patent and the Naimpally patent fails to disclose or suggest the inventions of dependent claims 86 and 87.

Accordingly, dependent claims 86 and 87 are not unpatentable over the Vancelette patent in view of the Naimpally patent.

Moreover dependent claim 64 recites that the encoded frames have a time base which is slaved to the original frames of the selected program.

As discussed above in connection with dependent claim 37, there is no disclosure in the Vancelette patent of an MPEG encoder that produces encoded frames having a time base which is slaved to the original frames.

Similarly, there is no disclosure in the Naimpally patent of an MPEG encoder that produces encoded

frames having a time base which is slaved to the original frames.

Accordingly, the combination of the Vancelette patent and the Naimpally patent cannot disclose the invention of dependent claim 64.

Therefore, the Vancelette patent does not suggest the invention independent claim 64.

CONCLUSION

In view of the above, it is clear that the claims of the present application are patentable over the references applied by the Examiner. Accordingly, allowance of these claims and issuance of the above captioned patent application are respectfully requested.

Respectfully submitted,

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